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AU OLDHAM E R; DALEY M J
SO J DAIRY SCI, (1991) 74 (12), 4175-4182.
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IN Blackburn, Peter; Pollack, June
SO S. African, 38 pp.
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SO EIGHTY-THIRD ANNUAL MEETING OF THE AMERICAN DAIRY SCIENCE ASSOCIATION, EDMONTON, ALBERTA, CANADA, JUNE 26-29, 1988. J DAIRY SCI. (1988) 71 (SUPPL 1), 244.
CODEN: JDSCAE. ISSN: 0022-0302. P. 244.

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AU Zyagmunt, Walter A.; Tavormina, Peter A.
SO Fortschr. Arzneimittelforsch. (1972), 16, 309-33
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P376 Lysostaphin efficacy for treatment of Staphylococcus aureus intramammary infection. P.M. Sears*, B.S. Smith, J. Polak, and S.N. Gusik, and P. Blackburn, Cornell University, Ithaca, NY and Public Health Research Institute/Applied Microbiology, Inc., New York, NY.

Clone-derived lysostaphin was evaluated as to its bacteriocidal effect on S. aureus intramammary infections. S. aureus (Newbould-305) was eliminated from glands of guinea pigs 48 hrs post-infection by 125 mcg of lysostaphin in 14/16, 25 mcg in 5/8, 5 mcg in 5/10, 1 mcg in 0/1, and 0 mcg in 0/3. Glands infected with S. aureus at 48 hrs post-challenge in untreated guinea pigs persisted; however 3/25 control glands of treated guinea pigs cleared in response to treatment of the adjacent gland.

Somatic cell/ml in the guinea pig shifted from 10's $x10^3$ pre-infected glands to cell counts greater than 1.0 $x10^6$ following S. aureus inoculation. Treatment with lysostaphin caused a neutrophilic shift in the treated gland to levels exceeding 100 $x10^6$ accompanied by an increase in the adjacent non-treated gland but dropped sharply to pre-treatment level. The greatest response in control glands was observed in animals receiving 125 mcg which corresponded to 2/25 clearance of S. aureus in control glands.

The leukocytic response to intramammary treatment in the cow is similar to the guinea pig model described above. Somatic cell levels increased ten fold in S. aureus infected glands at the milking following treatment. Cell levels returned to pre-treatment levels or lower in subsequent milkings. A rise in leukocytes alone could not account for clearance of the infection.

P377 The effect of a hydraulic milking device on milking rate, milk yield and transfer of bacteria between quarters in dairy cows. L. M. Rode*, D. S. Croy, R. C. Phillippe and K.-J. Cheng. Agriculture Canada, Lethbridge, Alberta, and Alberta Agriculture, Lethbridge, Alberta.

Sixteen cows in midlactation were used in a crossover design, with two periods of 21 days, to determine the effectiveness of a hydraulic milking device (Hydramast®, Deosan Ltd., Northampton, U.K.). Milk yield was measured every 15 seconds until milk flow ceased. Milk yield was 5.1 and 4.8 kg ($P < 0.01$) after 120 seconds and 7.4 and 7.2 kg ($P < 0.01$) after 180 seconds, for Hydramast-milked (H) and control (C) cows, respectively. Total milking time was 311 and 317 seconds for H and C respectively, and unaffected by treatment. Total milk yield was lower ($P < 0.01$) for H than C cows (10.4 vs. 10.9 kg per day). There was a time x treatment interaction ($P < 0.01$) for 120 and 180 second milk yield and total milking time. Cows adapted to the Hydramast device by milking faster. Transfer of a noninfectious Rhyzobium marker bacteria was reduced but not prevented by the Hydramast device.

P378 Influence of use of LDBSA or iodophor teat dip on staphylococcal prevalence and new Staphylococcus aureus infection rate. R.J. Harmon*, B.E. Langlois, K. Akers, W.L. Crist and R.W. Hacken. University of Kentucky, Lexington.

All cows in a university dairy herd (X = 113) were paired by breed, age, stage of lactation, and quarter infection status and randomly assigned to a group receiving either 1% iodophor (I) or 1.94% linear dodecyl benzene sulfonic acid (LDBSA) teat dip. Duplicate quarter samples were taken bimonthly over the 12 months completed. There was a slight decline in coagulase-negative Staphylococcus spp. prevalence in both groups but little difference between groups. S. aureus prevalence increased from 8.3% to 12.3% (of quarters) in the LDBSA group and declined from 8.7% to 3.0% in the I group. Number of new S. aureus infections for LDBSA and I were 45 and 7 and new infection (NI) rates (NI/100 cow-days) were .215 and .033. Although more S. aureus infected cows in the LDBSA group left the herd, more S. aureus infections appeared to be spontaneously eliminated from the I group during lactation. The NI rate for S. aureus in the LDBSA group was similar to that observed in published studies, but I was more effective in this herd in limiting NI by S. aureus.